



#11

SEQUENCE LISTING

<110> Epimmune, Inc.
Sidney, John
Sette, Alessandro
Grey, Howard
Southwood, Scott

<120> SUBUNIT VACCINES WITH A2 SUPERMOTIFS

<130> 39963-20029.20

<140> US 09/935,476

<141> 2001-08-22

<150> US 09/346,105

<151> 1999-06-30

<150> US 60/264,969

<151> 2001-01-29

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 <223> Xaa = A, C, D, E, F, G, I, L, M, N, P, Q, S, T, V,
 W, X, Y

<221> VARIANT
 <222> (10)...(10)
 <223> Xaa = L, V, I, A, T, M

<400> 23
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 1 5 10

<210> 24
 <211> 10
 <212> PRT
 <213> Artificial Sequence

<220>
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 W, X, Y

<221> VARIANT
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 <223> Xaa = L, M, V, T, Q, A

<221> VARIANT
 <222> 3
 <223> Xaa = A, C, F, H, I, L, M, N, P, Q, S, T, V, W, X,
 Y

<221> VARIANT
 <222> 4
 <223> Xaa = A, C, D, E, F, G, H, I, K, L, M, N, Q, R, S,
 T, V, W, X, Y

<221> VARIANT
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 <223> Xaa = Any amino acid

<221> VARIANT
 <222> 6

<223> Xaa = Any amino acid

 <221> VARIANT
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 <223> Xaa = V

 <221> VARIANT
 <222> (8)...(8)
 <223> Xaa = A, C, E, F, G, H, I, K, L, M, P, R, S, T, V,
 W, X, Y

 <221> VARIANT
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 W, X, Y

 <221> VARIANT
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 <400> 24
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 1 5 10

 <210> 25
 <211> 10
 <212> PRT
 <213> Artificial Sequence

 <220>
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 W, X, Y

 <221> VARIANT
 <222> 2
 <223> Xaa = L, M, V, T, Q, A

 <221> VARIANT
 <222> 3
 <223> Xaa = A, C, F, H, I, L, M, N, P, Q, S, T, V, W, X,
 Y

 <221> VARIANT
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 <223> Xaa = A, C, D, E, F, G, H, I, K, L, M, N, Q, R, S,
 T, V, W, X, Y

 <221> VARIANT
 <222> 5
 <223> Xaa = Any amino acid

 <221> VARIANT
 <222> 6
 <223> Xaa = Any amino acid

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<221> VARIANT
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<223> Xaa = I

<221> VARIANT
<222> (8)...(8)
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      W, X, Y

<221> VARIANT
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      W, X, Y

<221> VARIANT
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<400> 25
Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
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<210> 26
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
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      W, X, Y

<221> VARIANT
<222> 2
<223> Xaa = L, M, V, T, Q, A

<221> VARIANT
<222> 3
<223> Xaa = A, C, F, H, I, L, M, N, P, Q, S, T, V, W, X,
      Y

<221> VARIANT
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<223> Xaa = A, C, D, E, F, G, H, I, K, L, M, N, Q, R, S,
      T, V, W, X, Y

<221> VARIANT
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<223> Xaa = Any amino acid

<221> VARIANT
<222> 6
<223> Xaa = Any amino acid

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<221> VARIANT
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<223> Xaa = M

<221> VARIANT
<222> (8)...(8)
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      W, X, Y

<221> VARIANT
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      W, X, Y

<221> VARIANT
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<400> 26
Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
 1             5             10

<210> 27
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<220>
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      W, X, Y

<221> VARIANT
<222> 2
<223> Xaa = L, M, V, T, Q, A

<221> VARIANT
<222> 3
<223> Xaa = A, C, F, H, I, L, M, N, P, Q, S, T, V, W, X,
      Y

<221> VARIANT
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<223> Xaa = A, C, F, H, I, L, M, N, P, Q, S, T, V, W, X,
      Y

<221> VARIANT
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<223> Xaa = Any amino acid

<221> VARIANT
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<223> Xaa = Any amino acid

<221> VARIANT

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<222> (7)...(7)
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 W, X, Y

<221> VARIANT
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 <223> Xaa = H

<221> VARIANT
 <222> (9)...(9)
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 W, X, Y

<221> VARIANT
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 <223> Xaa = L, V, I, A, T, M

<400> 27
 Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
 1 5 10

<210> 28
 <211> 10
 <212> PRT
 <213> Artificial Sequence

<220>
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 <223> Xaa = A, C, F, G, H, I, K, L, M, N, Q, R, S, T, V,
 W, X, Y

<221> VARIANT
 <222> 2
 <223> Xaa = L, M, V, T, Q, A

<221> VARIANT
 <222> 3
 <223> Xaa = A, C, F, H, I, L, M, N, P, Q, S, T, V, W, X,
 Y

<221> VARIANT
 <222> 4
 <223> Xaa = A, C, F, H, I, L, M, N, P, Q, S, T, V, W, X,
 Y

<221> VARIANT
 <222> 5
 <223> Xaa = Any amino acid

<221> VARIANT
 <222> 6
 <223> Xaa = Any amino acid

<221> VARIANT
 <222> (7)...(7)

<223> Xaa = A, C, D, E, F, G, H, I, K, L, M, R, S, T, V,
 W, X, Y

<221> VARIANT
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 <223> Xaa = R

<221> VARIANT
 <222> (9)...(9)
 <223> Xaa = A, C, D, E, F, G, I, L, M, N, P, Q, S, T, V,
 W, X, Y

<221> VARIANT
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 <223> Xaa = L, V, I, A, T, M

<400> 28
 Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
 1 5 10

<210> 29
 <211> 10
 <212> PRT
 <213> Artificial Sequence

<220>
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 <223> Xaa = A, C, F, G, H, I, K, L, M, N, Q, R, S, T, V,
 W, X, Y

<221> VARIANT
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 <223> Xaa = L, M, V, T, Q, A

<221> VARIANT
 <222> 3
 <223> Xaa = A, C, F, H, I, L, M, N, P, Q, S, T, V, W, X,
 Y

<221> VARIANT
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 <223> Xaa = A, C, F, H, I, L, M, N, P, Q, S, T, V, W, X,
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<221> VARIANT
 <222> 5
 <223> Xaa = Any amino acid

<221> VARIANT
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 <223> Xaa = Any amino acid

<221> VARIANT
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 <223> Xaa = A, C, D, E, F, G, H, I, K, L, M, R, S, T, V,

W, X, Y

<221> VARIANT
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 <223> Xaa = K

<221> VARIANT
 <222> (9)...(9)
 <223> Xaa = A, C, D, E, F, G, I, L, M, N, P, Q, S, T, V,
 W, X, Y

<221> VARIANT
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 <223> Xaa = L, V, I, A, T, M

<400> 29
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 1 5 10

<210> 30
 <211> 10
 <212> PRT
 <213> Artificial Sequence

<220>
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 <222> 1
 <223> Xaa = F, Y

<221> VARIANT
 <222> 2
 <223> Xaa = L, M, V, T, Q, A

<221> VARIANT
 <222> 3
 <223> Xaa = F

<221> VARIANT
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 <223> Xaa = A, C, F, H, I, L, M, N, P, Q, S, T, V, W, X,
 Y

<221> VARIANT
 <222> 5
 <223> Xaa = D, E

<221> VARIANT
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 <223> Xaa = any amino acid

<221> VARIANT
 <222> (7)...(7)
 <223> Xaa = L, V, I, M

<221> VARIANT
 <222> (8)...(8)

<223> Xaa = H, R, K

<221> VARIANT
 <222> (9)...(9)
 <223> Xaa = A, C, D, E, F, G, I, L, M, N, P, Q, S, T, V,
 W, X, Y

<221> VARIANT
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 <223> Xaa = L, V, I, A, T, M

<400> 30
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<210> 31
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 <223> Xaa = Y

<221> VARIANT
 <222> 2
 <223> Xaa = L, M, V, T, Q, A, I

<221> VARIANT
 <222> 3
 <223> Xaa = D, E, R, K

<221> VARIANT
 <222> 4
 <223> Xaa = any amino acid

<221> VARIANT
 <222> 5
 <223> Xaa = A, C, D, F, G, H, I, K, L, M, N, P, Q, R, S,
 T, V, W, X, Y

<221> VARIANT
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 <223> Xaa = C, D, E, F, G, H, I, K, L, M, N, P, Q, R, S,
 T, V, W, X, Y

<221> VARIANT
 <222> (7)...(7)
 <223> Xaa = A, C, F, G, H, I, K, L, M, N, P, Q, R, S, T,
 V, W, X, Y

<221> VARIANT
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 <223> Xaa = Any amino acid

<221> VARIANT
<222> (9)...(9)
<223> Xaa = L, V, I, A, T, M

<400> 31
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1 5

<210> 32
<211> 9
<212> PRT
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<221> VARIANT
<222> 2
<223> Xaa = L, M, V, T, Q, A, I

<221> VARIANT
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<223> Xaa = D, E, R, K

<221> VARIANT
<222> 4
<223> Xaa = any amino acid

<221> VARIANT
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<223> Xaa = A, C, D, F, G, H, I, K, L, M, N, P, Q, R, S,
T, V, W, X, Y

<221> VARIANT
<222> 6
<223> Xaa = C, D, E, F, G, H, I, K, L, M, N, P, Q, R, S,
T, V, W, X, Y

<221> VARIANT
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<223> Xaa = A, C, F, G, H, I, K, L, M, N, P, Q, R, S, T,
V, W, X, Y

<221> VARIANT
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<223> Xaa = Any amino acid

<221> VARIANT
<222> (9)...(9)
<223> Xaa = L, V, I, A, T, M

<400> 32
Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
1 5

<210> 33
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 <212> PRT
 <213> Artificial Sequence

 <220>
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 T, V, W, X, Y

 <221> VARIANT
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 <223> Xaa = L, M, V, T, Q, A, I

 <221> VARIANT
 <222> 3
 <223> Xaa = A

 <221> VARIANT
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 <223> Xaa = Any amino acid

 <221> VARIANT
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 <223> Xaa = A, C, D, F, G, H, I, K, L, M, N, P, Q, R, S,
 T, V, W, X, Y

 <221> VARIANT
 <222> 6
 <223> Xaa = C, D, E, F, G, H, I, K, L, M, N, P, Q, R, S,
 T, V, W, X, Y

 <221> VARIANT
 <222> (7)...(7)
 <223> Xaa = A, C, F, G, H, I, K, L, M, N, P, Q, R, S, T,
 V, W, X, Y

 <221> VARIANT
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 <223> Xaa = Any amino acid

 <221> VARIANT
 <222> (9)...(9)
 <223> Xaa = L, V, I, A, T, M

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 1 5

 <210> 34

<211> 9
 <212> PRT
 <213> Artificial Sequence

 <220>
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 <223> Xaa = Y, F

 <221> VARIANT
 <222> 2
 <223> Xaa = L, M, V, T, Q, A, I

 <221> VARIANT
 <222> 3
 <223> Xaa = A

 <221> VARIANT
 <222> 4
 <223> Xaa = any amino acid

 <221> VARIANT
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 T, V, W, X, Y

 <221> VARIANT
 <222> 6
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 T, V, W, X, Y

 <221> VARIANT
 <222> (7)...(7)
 <223> Xaa = A, C, F, G, H, I, K, L, M, N, P, Q, R, S, T,
 V, W, X, Y

 <221> VARIANT
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 <223> Xaa = Any amino acid

 <221> VARIANT
 <222> (9)...(9)
 <223> Xaa = L, V, I, A, T, M

 <400> 34
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 1 5

 <210> 35
 <211> 10
 <212> PRT
 <213> Artificial Sequence

 <220>
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<221> VARIANT
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<223> Xaa = L, M, V, T, Q, A, I

<221> VARIANT
<222> 3
<223> Xaa = A, C, F, H, I, L, M, N, P, Q, S, T, V, W, X,
      Y

<221> VARIANT
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<223> Xaa = A, C, D, E, F, G, H, I, K, L, M, N, Q, R, S,
      T, V, W, X, Y

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<222> 5
<223> Xaa = any amino acid

<221> VARIANT
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<221> VARIANT
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      W, X, Y

<221> VARIANT
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<223> Xaa = A, C, E, F, G, H, I, K, L, M, P, R, S, T, V,
      W, X, Y

<221> VARIANT
<222> (9)...(9)
<223> Xaa = A, C, D, E, F, G, I, L, M, N, P, Q, S, T, V,
      W, X, Y

<221> VARIANT
<222> (10)...(10)
<223> Xaa = L, V, I, A, T, M

<400> 35
Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
 1             5             10

<210> 36
<211> 10
<212> PRT
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<220>
<221> VARIANT
<222> 1
<223> Xaa = Y

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<221> VARIANT
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<223> Xaa = L, M, V, T, Q, A, I

<221> VARIANT
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<223> Xaa = A, C, F, H, I, L, M, N, P, Q, S, T, V, W, X,
      Y

<221> VARIANT
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<223> Xaa = A, C, D, E, F, G, H, I, K, L, M, N, Q, R, S,
      T, V, W, X, Y

<221> VARIANT
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<223> Xaa = any amino acid

<221> VARIANT
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<223> Xaa = any amino acid

<221> VARIANT
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      W, X, Y

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<223> Xaa = A, C, E, F, G, H, I, K, L, M, P, R, S, T, V,
      W, X, Y

<221> VARIANT
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<223> Xaa = A, C, D, E, F, G, I, L, M, N, P, Q, S, T, V,
      W, X, Y

<221> VARIANT
<222> (10)...(10)
<223> Xaa = L, V, I, A, T, M

<400> 36
Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
 1              5              10

<210> 37
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<212> PRT
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<220>
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      W, X, Y

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<221> VARIANT
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<223> Xaa = L, M, V, T, Q, A, I

<221> VARIANT
<222> 3
<223> Xaa = F

<221> VARIANT
<222> 4
<223> Xaa = A, C, D, E, F, G, H, I, K, L, M, N, Q, R, S,
      T, V, W, X, Y

<221> VARIANT
<222> 5
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<221> VARIANT
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<223> Xaa = Any amino acid

<221> VARIANT
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<223> Xaa = A, C, D, E, F, G, H, I, K, L, M, R, S, T, V,
      W, X, Y

<221> VARIANT
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<223> Xaa = A, C, E, F, G, H, I, K, L, M, P, R, S, T, V,
      W, X, Y

<221> VARIANT
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<223> Xaa = A, C, D, E, F, G, I, L, M, N, P, Q, S, T, V,
      W, X, Y

<221> VARIANT
<222> (10)...(10)
<223> Xaa = L, V, I, A, T, M

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Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
 1             5             10

<210> 38
<211> 10
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<220>
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      W, X, Y

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<221> VARIANT
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<223> Xaa = L, M, V, T, Q, A, I

<221> VARIANT
<222> 3
<223> Xaa = Y

<221> VARIANT
<222> 4
<223> Xaa = A, C, D, E, F, G, H, I, K, L, M, N, Q, R, S,
      T, V, W, X, Y

<221> VARIANT
<222> 5
<223> Xaa = Any amino acid

<221> VARIANT
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<223> Xaa = Any amino acid

<221> VARIANT
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      W, X, Y

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      W, X, Y

<221> VARIANT
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<223> Xaa = A, C, D, E, F, G, I, L, M, N, P, Q, S, T, V,
      W, X, Y

<221> VARIANT
<222> (10)...(10)
<223> Xaa = L, V, I, A, T, M

<400> 38
Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
 1              5              10

<210> 39
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<212> PRT
<213> Artificial Sequence

<220>
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<223> Xaa = A, C, F, G, H, I, K, L, M, N, Q, R, S, T, V,
      W, X, Y

<221> VARIANT

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<222> 2
<223> Xaa = L, M, V, T, Q, A, I

<221> VARIANT
<222> 3
<223> Xaa = W

<221> VARIANT
<222> 4
<223> Xaa = A, C, D, E, F, G, H, I, K, L, M, N, Q, R, S,
      T, V, W, X, Y

<221> VARIANT
<222> 5
<223> Xaa = Any amino acid

<221> VARIANT
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<223> Xaa = Any amino acid

<221> VARIANT
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<223> Xaa = A, C, D, E, F, G, H, I, K, L, M, R, S, T, V,
      W, X, Y

<221> VARIANT
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      W, X, Y

<221> VARIANT
<222> (9)...(9)
<223> Xaa = A, C, D, E, F, G, I, L, M, N, P, Q, S, T, V,
      W, X, Y

<221> VARIANT
<222> (10)...(10)
<223> Xaa = L, V, I, A, T, M

<400> 39
Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
 1             5             10

<210> 40
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<212> PRT
<213> Artificial Sequence

<220>
<221> VARIANT
<222> 1
<223> Xaa = A, C, F, G, H, I, K, L, M, N, Q, R, S, T, V,
      W, X, Y

<221> VARIANT
<222> 2

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<223> Xaa = L, M, V, T, Q, A, I

<221> VARIANT
<222> 3
<223> Xaa = A, C, F, H, I, L, M, N, P, Q, S, T, V, W, X,
      Y

<221> VARIANT
<222> 4
<223> Xaa = A, C, D, E, F, G, H, I, K, L, M, N, Q, R, S,
      T, V, W, X, Y

<221> VARIANT
<222> 5
<223> Xaa = D

<221> VARIANT
<222> 6
<223> Xaa = Any amino acid

<221> VARIANT
<222> (7)...(7)
<223> Xaa = A, C, D, E, F, G, H, I, K, L, M, R, S, T, V,
      W, X, Y

<221> VARIANT
<222> (8)...(8)
<223> Xaa = A, C, E, F, G, H, I, K, L, M, P, R, S, T, V,
      W, X, Y

<221> VARIANT
<222> (9)...(9)
<223> Xaa = A, C, D, E, F, G, I, L, M, N, P, Q, S, T, V,
      W, X, Y

<221> VARIANT
<222> (10)...(10)
<223> Xaa = L, V, I, A, T, M

<400> 40
Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
 1              5              10

<210> 41
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<221> VARIANT
<222> 1
<223> Xaa = A, C, F, G, H, I, K, L, M, N, Q, R, S, T, V,
      W, X, Y

<221> VARIANT
<222> 2

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<223> Xaa = L, M, V, T, Q, A, I

<221> VARIANT
<222> 3
<223> Xaa = A, C, F, H, I, L, M, N, P, Q, S, T, V, W, X,
      Y

<221> VARIANT
<222> 4
<223> Xaa = A, C, D, E, F, G, H, I, K, L, M, N, Q, R, S,
      T, V, W, X, Y

<221> VARIANT
<222> 5
<223> Xaa = E

<221> VARIANT
<222> 6
<223> Xaa = Any amino acid

<221> VARIANT
<222> (7)...(7)
<223> Xaa = A, C, D, E, F, G, H, I, K, L, M, R, S, T, V,
      W, X, Y

<221> VARIANT
<222> (8)...(8)
<223> Xaa = A, C, E, F, G, H, I, K, L, M, P, R, S, T, V,
      W, X, Y

<221> VARIANT
<222> (9)...(9)
<223> Xaa = A, C, D, E, F, G, I, L, M, N, P, Q, S, T, V,
      W, X, Y

<221> VARIANT
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<223> Xaa = L, V, I, A, T, M

<400> 41
Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
 1              5              10

<210> 42
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<221> VARIANT
<222> 1
<223> Xaa = A, C, F, G, H, I, K, L, M, N, Q, R, S, T, V,
      W, X, Y

<221> VARIANT
<222> 2

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<223> Xaa = L, M, V, T, Q, A, I

 <221> VARIANT
 <222> 3
 <223> Xaa = A, C, F, H, I, L, M, N, P, Q, S, T, V, W, X,
 Y

 <221> VARIANT
 <222> 4
 <223> Xaa = A, C, D, E, F, G, H, I, K, L, M, N, Q, R, S,
 T, V, W, X, Y

 <221> VARIANT
 <222> 5
 <223> Xaa = Any amino acid

 <221> VARIANT
 <222> 6
 <223> Xaa = Any amino acid

 <221> VARIANT
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 <223> Xaa = L

 <221> VARIANT
 <222> (8)...(8)
 <223> Xaa = A, C, E, F, G, H, I, K, L, M, P, R, S, T, V,
 W, X, Y

 <221> VARIANT
 <222> (9)...(9)
 <223> Xaa = A, C, D, E, F, G, I, L, M, N, P, Q, S, T, V,
 W, X, Y

 <221> VARIANT
 <222> (10)...(10)
 <223> Xaa = L, V, I, A, T, M

 <400> 42
 Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
 1 5 10

 <210> 43
 <211> 10
 <212> PRT
 <213> Artificial Sequence

 <220>
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 <222> 1
 <223> Xaa = A, C, F, G, H, I, K, L, M, N, Q, R, S, T, V,
 W, X, Y

 <221> VARIANT
 <222> 2
 <223> Xaa = L, M, V, T, Q, A, I

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<221> VARIANT
<222> 3
<223> Xaa = A, C, F, H, I, L, M, N, P, Q, S, T, V, W, X,
      Y

<221> VARIANT
<222> 4
<223> Xaa = A, C, D, E, F, G, H, I, K, L, M, N, Q, R, S,
      T, V, W, X, Y

<221> VARIANT
<222> 5
<223> Xaa = Any amino acid

<221> VARIANT
<222> 6
<223> Xaa = Any amino acid

<221> VARIANT
<222> (7)...(7)
<223> Xaa = V

<221> VARIANT
<222> (8)...(8)
<223> Xaa = A, C, E, F, G, H, I, K, L, M, P, R, S, T, V,
      W, X, Y

<221> VARIANT
<222> (9)...(9)
<223> Xaa = A, C, D, E, F, G, I, L, M, N, P, Q, S, T, V,
      W, X, Y

<221> VARIANT
<222> (10)...(10)
<223> Xaa = L, V, I, A, T, M

<400> 43
Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
 1             5             10

<210> 44
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<221> VARIANT
<222> 1
<223> Xaa = A, C, F, G, H, I, K, L, M, N, Q, R, S, T, V,
      W, X, Y

<221> VARIANT
<222> 2
<223> Xaa = L, M, V, T, Q, A, I

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<221> VARIANT
<222> 3
<223> Xaa = A, C, F, H, I, L, M, N, P, Q, S, T, V, W, X,
      Y

<221> VARIANT
<222> 4
<223> Xaa = A, C, D, E, F, G, H, I, K, L, M, N, Q, R, S,
      T, V, W, X, Y

<221> VARIANT
<222> 5
<223> Xaa = Any amino acid

<221> VARIANT
<222> 6
<223> Xaa = Any amino acid

<221> VARIANT
<222> (7)...(7)
<223> Xaa = I

<221> VARIANT
<222> (8)...(8)
<223> Xaa = A, C, E, F, G, H, I, K, L, M, P, R, S, T, V,
      W, X, Y

<221> VARIANT
<222> (9)...(9)
<223> Xaa = A, C, D, E, F, G, I, L, M, N, P, Q, S, T, V,
      W, X, Y

<221> VARIANT
<222> (10)...(10)
<223> Xaa = L, V, I, A, T, M

<400> 44
Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
 1           5           10

<210> 45
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<221> VARIANT
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<223> Xaa = A, C, F, G, H, I, K, L, M, N, Q, R, S, T, V,
      W, X, Y

<221> VARIANT
<222> 2
<223> Xaa = L, M, V, T, Q, A, I

<221> VARIANT

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<222> 3
<223> Xaa = A, C, F, H, I, L, M, N, P, Q, S, T, V, W, X,
      Y

<221> VARIANT
<222> 4
<223> Xaa = A, C, D, E, F, G, H, I, K, L, M, N, Q, R, S,
      T, V, W, X, Y

<221> VARIANT
<222> 5
<223> Xaa = Any amino acid

<221> VARIANT
<222> 6
<223> Xaa = Any amino acid

<221> VARIANT
<222> (7)...(7)
<223> Xaa = M

<221> VARIANT
<222> (8)...(8)
<223> Xaa = A, C, E, F, G, H, I, K, L, M, P, R, S, T, V,
      W, X, Y

<221> VARIANT
<222> (9)...(9)
<223> Xaa = A, C, D, E, F, G, I, L, M, N, P, Q, S, T, V,
      W, X, Y

<221> VARIANT
<222> (10)...(10)
<223> Xaa = L, V, I, A, T, M

<400> 45
Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
 1           5           10

<210> 46
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<221> VARIANT
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<223> Xaa = A, C, F, G, H, I, K, L, M, N, Q, R, S, T, V,
      W, X, Y

<221> VARIANT
<222> 2
<223> Xaa = L, M, V, T, Q, A, I

<221> VARIANT
<222> 3

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<223> Xaa = A, C, F, H, I, L, M, N, P, Q, S, T, V, W, X,
Y

<221> VARIANT

<222> 4

<223> Xaa = A, C, D, E, F, G, H, I, K, L, M, N, Q, R, S,
T, V, W, X, Y

<221> VARIANT

<222> 5

<223> Xaa = Any amino acid

<221> VARIANT

<222> 6

<223> Xaa = Any amino acid

<221> VARIANT

<222> (7)...(7)

<223> Xaa = A, C, D, E, F, G, H, I, K, L, M, R, S, T, V,
W, X, Y

<221> VARIANT

<222> (8)...(8)

<223> Xaa = H

<221> VARIANT

<222> (9)...(9)

<223> Xaa = A, C, D, E, F, G, I, L, M, N, P, Q, S, T, V,
W, X, Y

<221> VARIANT

<222> (10)...(10)

<223> Xaa = L, V, I, A, T, M

<400> 46

Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
1 5 10

<210> 47

<211> 10

<212> PRT

<213> Artificial Sequence

<220>

<221> VARIANT

<222> 1

<223> Xaa = A, C, F, G, H, I, K, L, M, N, Q, R, S, T, V,
W, X, Y

<221> VARIANT

<222> 2

<223> Xaa = L, M, V, T, Q, A, I

<221> VARIANT

<222> 3

<223> Xaa = A, C, F, H, I, L, M, N, P, Q, S, T, V, W, X,

Y

<221> VARIANT

<222> 4

<223> Xaa = A, C, D, E, F, G, H, I, K, L, M, N, Q, R, S,
T, V, W, X, Y

<221> VARIANT

<222> 5

<223> Xaa = Any amino acid

<221> VARIANT

<222> 6

<223> Xaa = Any amino acid

<221> VARIANT

<222> (7)...(7)

<223> Xaa = A, C, D, E, F, G, H, I, K, L, M, R, S, T, V,
W, X, Y

<221> VARIANT

<222> (8)...(8)

<223> Xaa = R

<221> VARIANT

<222> (9)...(9)

<223> Xaa = A, C, D, E, F, G, I, L, M, N, P, Q, S, T, V,
W, X, Y

<221> VARIANT

<222> (10)...(10)

<223> Xaa = L, V, I, A, T, M

<400> 47

Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
1 5 10

<210> 48

<211> 10

<212> PRT

<213> Artificial Sequence

<220>

<221> VARIANT

<222> 1

<223> Xaa = A, C, F, G, H, I, K, L, M, N, Q, R, S, T, V,
W, X, Y

<221> VARIANT

<222> 2

<223> Xaa = L, M, V, T, Q, A, I

<221> VARIANT

<222> 3

<223> Xaa = A, C, F, H, I, L, M, N, P, Q, S, T, V, W, X,
Y

<221> VARIANT
 <222> 4
 <223> Xaa = A, C, D, E, F, G, H, I, K, L, M, N, Q, R, S,
 T, V, W, X, Y

<221> VARIANT
 <222> 5
 <223> Xaa = Any amino acid

<221> VARIANT
 <222> 6
 <223> Xaa = Any amino acid

<221> VARIANT
 <222> (7)...(7)
 <223> Xaa = A, C, D, E, F, G, H, I, K, L, M, R, S, T, V,
 W, X, Y

<221> VARIANT
 <222> (8)...(8)
 <223> Xaa = K

<221> VARIANT
 <222> (9)...(9)
 <223> Xaa = A, C, D, E, F, G, I, L, M, N, P, Q, S, T, V,
 W, X, Y

<221> VARIANT
 <222> (10)...(10)
 <223> Xaa = L, V, I, A, T, M

<400> 48
 Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
 1 5 10

<210> 49
 <211> 10
 <212> PRT
 <213> Artificial Sequence

<220>
 <221> VARIANT
 <222> 1
 <223> Xaa = F, Y

<221> VARIANT
 <222> 2
 <223> Xaa = L, M, V, T, Q, A, I

<221> VARIANT
 <222> 3
 <223> Xaa = F, Y, W

<221> VARIANT
 <222> 4

<223> Xaa = A, C, D, E, F, G, H, I, K, L, M, N, Q, R, S,
T, V, W, X, Y

<221> VARIANT

<222> 5

<223> Xaa = D, E

<221> VARIANT

<222> 6

<223> Xaa = any amino acid

<221> VARIANT

<222> (7)...(7)

<223> Xaa = L, V, I, M

<221> VARIANT

<222> (8)...(8)

<223> Xaa = H, R, K

<221> VARIANT

<222> (9)...(9)

<223> Xaa = A, C, D, E, F, G, I, L, M, N, P, Q, S, T, V,
W, X, Y

<221> VARIANT

<222> (10)...(10)

<223> Xaa = L, V, I, A, T, M

<400> 49

Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
1 5 10

<210> 50

<211> 9

<212> PRT

<213> Artificial Sequence

<220>

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<222> 1

<223> Xaa = Y

<221> VARIANT

<222> 2

<223> Xaa = L, M, V, T, Q, A, I

<221> VARIANT

<222> 3

<223> Xaa = A, C, F, G, H, I, L, M, N, P, Q, S, T, V, W,
X, Y

<221> VARIANT

<222> 4

<223> Xaa = any amino acid

<221> VARIANT

<222> 5
 <223> Xaa = A, C, D, F, G, H, I, K, L, M, N, P, Q, R, S,
 T, V, W, X, Y

<221> VARIANT
 <222> 6
 <223> Xaa = C, D, E, F, G, H, I, K, L, M, N, P, Q, R, S,
 T, V, W, X, Y

<221> VARIANT
 <222> (7)...(7)
 <223> Xaa = A, C, F, G, H, I, K, L, M, N, P, Q, R, S, T,
 V, W, X, Y

<221> VARIANT
 <222> (8)...(8)
 <223> Xaa = any amino acid

<221> VARIANT
 <222> (9)...(9)
 <223> Xaa = L, V, I, A, T, and M

<400> 50
 Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
 1 5

<210> 51
 <211> 9
 <212> PRT
 <213> Artificial Sequence

<220>
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 <223> Xaa = F

<221> VARIANT
 <222> 2
 <223> Xaa = L, M, V, T, Q, A, I

<221> VARIANT
 <222> 3
 <223> Xaa = A, C, F, G, H, I, L, M, N, P, Q, S, T, V, W,
 X, Y

<221> VARIANT
 <222> 4
 <223> Xaa = any amino acid

<221> VARIANT
 <222> 5
 <223> Xaa = A, C, D, F, G, H, I, K, L, M, N, P, Q, R, S,
 T, V, W, X, Y

<221> VARIANT
 <222> 6

<223> Xaa = C, D, E, F, G, H, I, K, L, M, N, P, Q, R, S,
T, V, W, X, Y

<221> VARIANT

<222> (7)...(7)

<223> Xaa = A, C, F, G, H, I, K, L, M, N, P, Q, R, S, T,
V, W, X, Y

<221> VARIANT

<222> (8)...(8)

<223> Xaa = any amino acid

<221> VARIANT

<222> (9)...(9)

<223> Xaa = L, V, I, A, T, and M

<400> 51

Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
1 5

<210> 52

<211> 9

<212> PRT

<213> Artificial Sequence

<220>

<221> VARIANT

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<223> Xaa = A, C, D, E, F, G, H, I, K, L, M, N, Q, R, S,
T, V, W, X, Y

<221> VARIANT

<222> 2

<223> Xaa = L, M, V, T, Q, A, I

<221> VARIANT

<222> 3

<223> Xaa = A

<221> VARIANT

<222> 4

<223> Xaa = any amino acid

<221> VARIANT

<222> 5

<223> Xaa = A, C, D, F, G, H, I, K, L, M, N, P, Q, R, S,
T, V, W, X, Y

<221> VARIANT

<222> 6

<223> Xaa = C, D, E, F, G, H, I, K, L, M, N, P, Q, R, S,
T, V, W, X, Y

<221> VARIANT

<222> (7)...(7)

<223> Xaa = A, C, F, G, H, I, K, L, M, N, P, Q, R, S, T,

V, W, X, Y

<221> VARIANT
<222> (8)...(8)
<223> Xaa = any amino acid

<221> VARIANT
<222> (9)...(9)
<223> Xaa = L, V, I, A, T, and M

<400> 52
Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
1 5

<210> 53
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<221> VARIANT
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<223> Xaa = Y

<221> VARIANT
<222> 2
<223> Xaa = L, M, V, T, Q, A, I

<221> VARIANT
<222> 3
<223> Xaa = A

<221> VARIANT
<222> 4
<223> Xaa = any amino acid

<221> VARIANT
<222> 5
<223> Xaa = A, C, D, F, G, H, I, K, L, M, N, P, Q, R, S,
T, V, W, X, Y

<221> VARIANT
<222> 6
<223> Xaa = C, D, E, F, G, H, I, K, L, M, N, P, Q, R, S,
T, V, W, X, Y

<221> VARIANT
<222> (7)...(7)
<223> Xaa = A, C, F, G, H, I, K, L, M, N, P, Q, R, S, T,
V, W, X, Y

<221> VARIANT
<222> (8)...(8)
<223> Xaa = any amino acid

<221> VARIANT

<222> (9)...(9)
 <223> Xaa = L, V, I, A, T, and M

 <400> 53
 Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
 1 5

 <210> 54
 <211> 9
 <212> PRT
 <213> Artificial Sequence

 <220>
 <221> VARIANT
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 <223> Xaa = F

 <221> VARIANT
 <222> 2
 <223> Xaa = L, M, V, T, Q, A, I

 <221> VARIANT
 <222> 3
 <223> Xaa = A

 <221> VARIANT
 <222> 4
 <223> Xaa = any amino acid

 <221> VARIANT
 <222> 5
 <223> Xaa = A, C, D, F, G, H, I, K, L, M, N, P, Q, R, S,
 T, V, W, X, Y

 <221> VARIANT
 <222> 6
 <223> Xaa = C, D, E, F, G, H, I, K, L, M, N, P, Q, R, S,
 T, V, W, X, Y

 <221> VARIANT
 <222> (7)...(7)
 <223> Xaa = A, C, F, G, H, I, K, L, M, N, P, Q, R, S, T,
 V, W, X, Y

 <221> VARIANT
 <222> (8)...(8)
 <223> Xaa = any amino acid

 <221> VARIANT
 <222> (9)...(9)
 <223> Xaa = L, V, I, A, T, and M

 <400> 54
 Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
 1 5

<210> 55
 <211> 10
 <212> PRT
 <213> Artificial Sequence

<220>
 <221> VARIANT
 <222> 1
 <223> Xaa = F

<221> VARIANT
 <222> 2
 <223> Xaa = L, M, V, T, Q, A, I

<221> VARIANT
 <222> 3
 <223> Xaa = F, Y, W

<221> VARIANT
 <222> 4
 <223> Xaa = A, C, D, E, F, G, H, I, K, L, M, N, Q, R, S,
 T, V, W, X, Y

<221> VARIANT
 <222> 5
 <223> Xaa = D, E

<221> VARIANT
 <222> 6
 <223> Xaa = Any amino acid

<221> VARIANT
 <222> (7)...(7)
 <223> Xaa = L, V, I, M

<221> VARIANT
 <222> (8)...(8)
 <223> Xaa = H, R, K

<221> VARIANT
 <222> (9)...(9)
 <223> Xaa = A, C, D, E, F, G, I, L, M, N, P, Q, S, T, V,
 W, X, Y

<221> VARIANT
 <222> (10)...(10)
 <223> Xaa = L, V, I, A, T, M

<400> 55
 Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
 1 5 10

<210> 56
 <211> 10
 <212> PRT

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<213> Artificial Sequence

<220>
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<222> 1
<223> Xaa = Y

<221> VARIANT
<222> 2
<223> Xaa = L, M, V, T, Q, A, I

<221> VARIANT
<222> 3
<223> Xaa = F, Y, W

<221> VARIANT
<222> 4
<223> Xaa = A, C, D, E, F, G, H, I, K, L, M, N, Q, R, S,
      T, V, W, X, Y

<221> VARIANT
<222> 5
<223> Xaa = D, E

<221> VARIANT
<222> 6
<223> Xaa = Any amino acid

<221> VARIANT
<222> (7)...(7)
<223> Xaa = L, V, I, M

<221> VARIANT
<222> (8)...(8)
<223> Xaa = H, R, K

<221> VARIANT
<222> (9)...(9)
<223> Xaa = A, C, D, E, F, G, I, L, M, N, P, Q, S, T, V,
      W, X, Y

<221> VARIANT
<222> (10)...(10)
<223> Xaa = L, V, I, A, T, M

<400> 56
Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
 1              5              10

<210> 57
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<221> VARIANT

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```

<222> 1
<223> Xaa = A, C, F, G, H, I, K, L, M, N, Q, R, S, T, V,
      W, X, Y

<221> VARIANT
<222> 2
<223> Xaa = L, M, V, T, Q, A, I

<221> VARIANT
<222> 3
<223> Xaa = F

<221> VARIANT
<222> 4
<223> Xaa = A, C, D, E, F, G, H, I, K, L, M, N, Q, R, S,
      T, V, W, X, Y

<221> VARIANT
<222> 5
<223> Xaa = D, E

<221> VARIANT
<222> 6
<223> Xaa = Any amino acid

<221> VARIANT
<222> (7)...(7)
<223> Xaa = L, V, I, M

<221> VARIANT
<222> (8)...(8)
<223> Xaa = H, R, K

<221> VARIANT
<222> (9)...(9)
<223> Xaa = A, C, D, E, F, G, I, L, M, N, P, Q, S, T, V,
      W, X, Y

<221> VARIANT
<222> (10)...(10)
<223> Xaa = L, V, I, A, T, M

<400> 57
Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
 1              5              10

<210> 58
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<221> VARIANT
<222> 1
<223> Xaa = A, C, F, G, H, I, K, L, M, N, Q, R, S, T, V,
      W, X, Y

```

```

<221> VARIANT
<222> 2
<223> Xaa = L, M, V, T, Q, A, I

<221> VARIANT
<222> 3
<223> Xaa = Y

<221> VARIANT
<222> 4
<223> Xaa = A, C, D, E, F, G, H, I, K, L, M, N, Q, R, S,
      T, V, W, X, Y

<221> VARIANT
<222> 5
<223> Xaa = D, E

<221> VARIANT
<222> 6
<223> Xaa = Any amino acid

<221> VARIANT
<222> (7)...(7)
<223> Xaa = L, V, I, M

<221> VARIANT
<222> (8)...(8)
<223> Xaa = H, R, K

<221> VARIANT
<222> (9)...(9)
<223> Xaa = A, C, D, E, F, G, I, L, M, N, P, Q, S, T, V,
      W, X, Y

<221> VARIANT
<222> (10)...(10)
<223> Xaa = L, V, I, A, T, M

<400> 58
Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
 1             5             10

<210> 59
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<221> VARIANT
<222> 1
<223> Xaa = A, C, F, G, H, I, K, L, M, N, Q, R, S, T, V,
      W, X, Y

<221> VARIANT
<222> 2

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<223> Xaa = L, M, V, T, Q, A, I

<221> VARIANT
<222> 3
<223> Xaa = W

<221> VARIANT
<222> 4
<223> Xaa = A, C, D, E, F, G, H, I, K, L, M, N, Q, R, S,
      T, V, W, X, Y

<221> VARIANT
<222> 5
<223> Xaa = D, E

<221> VARIANT
<222> 6
<223> Xaa = Any amino acid

<221> VARIANT
<222> (7)...(7)
<223> Xaa = L, V, I, M

<221> VARIANT
<222> (8)...(8)
<223> Xaa = H, R, K

<221> VARIANT
<222> (9)...(9)
<223> Xaa = A, C, D, E, F, G, I, L, M, N, P, Q, S, T, V,
      W, X, Y

<221> VARIANT
<222> (10)...(10)
<223> Xaa = L, V, I, A, T, M

<400> 59
Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
 1           5           10

<210> 60
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<221> VARIANT
<222> 1
<223> Xaa = A, C, F, G, H, I, K, L, M, N, Q, R, S, T, V,
      W, X, Y

<221> VARIANT
<222> 2
<223> Xaa = L, M, V, T, Q, A, I

<221> VARIANT

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```

<222> 3
<223> Xaa = F, Y, W

<221> VARIANT
<222> 4
<223> Xaa = A, C, D, E, F, G, H, I, K, L, M, N, Q, R, S,
      T, V, W, X, Y

<221> VARIANT
<222> 5
<223> Xaa = D

<221> VARIANT
<222> 6
<223> Xaa = Any amino acid

<221> VARIANT
<222> (7)...(7)
<223> Xaa = L, V, I, M

<221> VARIANT
<222> (8)...(8)
<223> Xaa = H, R, K

<221> VARIANT
<222> (9)...(9)
<223> Xaa = A, C, D, E, F, G, I, L, M, N, P, Q, S, T, V,
      W, X, Y

<221> VARIANT
<222> (10)...(10)
<223> Xaa = L, V, I, A, T, M

<400> 60
Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
 1              5              10

<210> 61
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<221> VARIANT
<222> 1
<223> Xaa = A, C, F, G, H, I, K, L, M, N, Q, R, S, T, V,
      W, X, Y

<221> VARIANT
<222> 2
<223> Xaa = L, M, V, T, Q, A, I

<221> VARIANT
<222> 3
<223> Xaa = F, Y, W

```

```

<221> VARIANT
<222> 4
<223> Xaa = A, C, D, E, F, G, H, I, K, L, M, N, Q, R, S,
      T, V, W, X, Y

<221> VARIANT
<222> 5
<223> Xaa = E

<221> VARIANT
<222> 6
<223> Xaa = Any amino acid

<221> VARIANT
<222> (7)...(7)
<223> Xaa = L, V, I, M

<221> VARIANT
<222> (8)...(8)
<223> Xaa = H, R, K

<221> VARIANT
<222> (9)...(9)
<223> Xaa = A, C, D, E, F, G, I, L, M, N, P, Q, S, T, V,
      W, X, Y

<221> VARIANT
<222> (10)...(10)
<223> Xaa = L, V, I, A, T, M

<400> 61
Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
 1              5              10

<210> 62
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<221> VARIANT
<222> 1
<223> Xaa = A, C, F, G, H, I, K, L, M, N, Q, R, S, T, V,
      W, X, Y

<221> VARIANT
<222> 2
<223> Xaa = L, M, V, T, Q, A, I

<221> VARIANT
<222> 3
<223> Xaa = F, Y, W

<221> VARIANT
<222> 4
<223> Xaa = A, C, D, E, F, G, H, I, K, L, M, N, Q, R, S,

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T, V, W, X, Y

<221> VARIANT

<222> 5

<223> Xaa = D, E

<221> VARIANT

<222> 6

<223> Xaa = Any amino acid

<221> VARIANT

<222> (7)...(7)

<223> Xaa = L

<221> VARIANT

<222> (8)...(8)

<223> Xaa = H, R, K

<221> VARIANT

<222> (9)...(9)

<223> Xaa = A, C, D, E, F, G, I, L, M, N, P, Q, S, T, V,
W, X, Y

<221> VARIANT

<222> (10)...(10)

<223> Xaa = L, V, I, A, T, M

<400> 62

Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
1 5 10

<210> 63

<211> 10

<212> PRT

<213> Artificial Sequence

<220>

<221> VARIANT

<222> 1

<223> Xaa = A, C, F, G, H, I, K, L, M, N, Q, R, S, T, V,
W, X, Y

<221> VARIANT

<222> 2

<223> Xaa = L, M, V, T, Q, A, I

<221> VARIANT

<222> 3

<223> Xaa = F, Y, W

<221> VARIANT

<222> 4

<223> Xaa = A, C, D, E, F, G, H, I, K, L, M, N, Q, R, S,
T, V, W, X, Y

<221> VARIANT

<222> 5
 <223> Xaa = D, E

 <221> VARIANT
 <222> 6
 <223> Xaa = Any amino acid

 <221> VARIANT
 <222> (7)...(7)
 <223> Xaa = V

 <221> VARIANT
 <222> (8)...(8)
 <223> Xaa = H, R, K

 <221> VARIANT
 <222> (9)...(9)
 <223> Xaa = A, C, D, E, F, G, I, L, M, N, P, Q, S, T, V,
 W, X, Y

 <221> VARIANT
 <222> (10)...(10)
 <223> Xaa = L, V, I, A, T, M

 <400> 63
 Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
 1 5 10

 <210> 64
 <211> 10
 <212> PRT
 <213> Artificial Sequence

 <220>
 <221> VARIANT
 <222> 1
 <223> Xaa = A, C, F, G, H, I, K, L, M, N, Q, R, S, T, V,
 W, X, Y

 <221> VARIANT
 <222> 2
 <223> Xaa = L, M, V, T, Q, A, I

 <221> VARIANT
 <222> 3
 <223> Xaa = F, Y, W

 <221> VARIANT
 <222> 4
 <223> Xaa = A, C, D, E, F, G, H, I, K, L, M, N, Q, R, S,
 T, V, W, X, Y

 <221> VARIANT
 <222> 5
 <223> Xaa = D, E

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<221> VARIANT
<222> 6
<223> Xaa = Any amino acid

<221> VARIANT
<222> (7)...(7)
<223> Xaa = I

<221> VARIANT
<222> (8)...(8)
<223> Xaa = H, R, K

<221> VARIANT
<222> (9)...(9)
<223> Xaa = A, C, D, E, F, G, I, L, M, N, P, Q, S, T, V,
      W, X, Y

<221> VARIANT
<222> (10)...(10)
<223> Xaa = L, V, I, A, T, M

<400> 64
Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
 1              5              10

<210> 65
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<221> VARIANT
<222> 1
<223> Xaa = A, C, F, G, H, I, K, L, M, N, Q, R, S, T, V,
      W, X, Y

<221> VARIANT
<222> 2
<223> Xaa = L, M, V, T, Q, A, I

<221> VARIANT
<222> 3
<223> Xaa = F, Y, W

<221> VARIANT
<222> 4
<223> Xaa = A, C, D, E, F, G, H, I, K, L, M, N, Q, R, S,
      T, V, W, X, Y

<221> VARIANT
<222> 5
<223> Xaa = D, E

<221> VARIANT
<222> 6
<223> Xaa = Any amino acid

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<221> VARIANT
<222> (7)...(7)
<223> Xaa = M

<221> VARIANT
<222> (8)...(8)
<223> Xaa = H, R, K

<221> VARIANT
<222> (9)...(9)
<223> Xaa = A, C, D, E, F, G, I, L, M, N, P, Q, S, T, V,
      W, X, Y

<221> VARIANT
<222> (10)...(10)
<223> Xaa = L, V, I, A, T, M

<400> 65
Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
 1             5             10

<210> 66
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<221> VARIANT
<222> 1
<223> Xaa = A, C, F, G, H, I, K, L, M, N, Q, R, S, T, V,
      W, X, Y

<221> VARIANT
<222> 2
<223> Xaa = L, M, V, T, Q, A, I

<221> VARIANT
<222> 3
<223> Xaa = F, Y, W

<221> VARIANT
<222> 4
<223> Xaa = A, C, D, E, F, G, H, I, K, L, M, N, Q, R, S,
      T, V, W, X, Y

<221> VARIANT
<222> 5
<223> Xaa = D, E

<221> VARIANT
<222> 6
<223> Xaa = Any amino acid

<221> VARIANT
<222> (7)...(7)

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<223> Xaa = L, V, I, M

<221> VARIANT

<222> (8)...(8)

<223> Xaa = H

<221> VARIANT

<222> (9)...(9)

<223> Xaa = A, C, D, E, F, G, I, L, M, N, P, Q, S, T, V,
W, X, Y

<221> VARIANT

<222> (10)...(10)

<223> Xaa = L, V, I, A, T, M

<400> 66

Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
1 5 10

<210> 67

<211> 10

<212> PRT

<213> Artificial Sequence

<220>

<221> VARIANT

<222> 1

<223> Xaa = A, C, F, G, H, I, K, L, M, N, Q, R, S, T, V,
W, X, Y

<221> VARIANT

<222> 2

<223> Xaa = L, M, V, T, Q, A, I

<221> VARIANT

<222> 3

<223> Xaa = F, Y, W

<221> VARIANT

<222> 4

<223> Xaa = A, C, D, E, F, G, H, I, K, L, M, N, Q, R, S,
T, V, W, X, Y

<221> VARIANT

<222> 5

<223> Xaa = D, E

<221> VARIANT

<222> 6

<223> Xaa = Any amino acid

<221> VARIANT

<222> (7)...(7)

<223> Xaa = L, V, I, M

<221> VARIANT

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<222> (8)...(8)
<223> Xaa = R

<221> VARIANT
<222> (9)...(9)
<223> Xaa = A, C, D, E, F, G, I, L, M, N, P, Q, S, T, V,
      W, X, Y

<221> VARIANT
<222> (10)...(10)
<223> Xaa = L, V, I, A, T, M

<400> 67
Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
 1             5             10

<210> 68
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<221> VARIANT
<222> 1
<223> Xaa = A, C, F, G, H, I, K, L, M, N, Q, R, S, T, V,
      W, X, Y

<221> VARIANT
<222> 2
<223> Xaa = L, M, V, T, Q, A, I

<221> VARIANT
<222> 3
<223> Xaa = F, Y, W

<221> VARIANT
<222> 4
<223> Xaa = A, C, D, E, F, G, H, I, K, L, M, N, Q, R, S,
      T, V, W, X, Y

<221> VARIANT
<222> 5
<223> Xaa = D, E

<221> VARIANT
<222> 6
<223> Xaa = Any amino acid

<221> VARIANT
<222> (7)...(7)
<223> Xaa = L, V, I, M

<221> VARIANT
<222> (8)...(8)
<223> Xaa = K

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<221> VARIANT
<222> (9)...(9)
<223> Xaa = A, C, D, E, F, G, I, L, M, N, P, Q, S, T, V,
      W, X, Y

<221> VARIANT
<222> (10)...(10)
<223> Xaa = L, V, I, A, T, M

<400> 68
Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
 1             5             10

<210> 69
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<221> VARIANT
<222> 1
<223> Xaa = F, Y

<221> VARIANT
<222> 2
<223> Xaa = L, M, V, T, Q, A, I

<221> VARIANT
<222> 3
<223> Xaa = F, Y, W

<221> VARIANT
<222> 4
<223> Xaa = A, C, D, E, F, G, H, I, K, L, M, N, Q, R, S,
      T, V, W, X, Y

<221> VARIANT
<222> 5
<223> Xaa = D, E

<221> VARIANT
<222> 6
<223> Xaa = Any amino acid

<221> VARIANT
<222> (7)...(7)
<223> Xaa = L, V, I, M

<221> VARIANT
<222> (8)...(8)
<223> Xaa = H, R, K

<221> VARIANT
<222> (9)...(9)
<223> Xaa = A, C, D, E, F, G, I, L, M, N, P, Q, S, T, V,
      W, X, Y

```

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<221> VARIANT
<222> (10)...(10)
<223> Xaa = L, V, I, A, T, M

<400> 69
Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
1          5          10

<210> 70
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<221> VARIANT
<222> 1
<223> Xaa = D, E, P

<221> VARIANT
<222> 2
<223> Xaa = L, M, I, V, A, T, Q

<221> VARIANT
<222> 3
<223> Xaa = G, R, H, K

<221> VARIANT
<222> 4
<223> Xaa = any amino acid

<221> VARIANT
<222> 5
<223> Xaa = L, I, M, Y, F, W

<221> VARIANT
<222> 6
<223> Xaa = A, Y, F, W

<221> VARIANT
<222> (7)...(7)
<223> Xaa = G, P

<221> VARIANT
<222> (8)...(8)
<223> Xaa = V, L, I, A, T

<400> 70
Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
1          5

<210> 71
<211> 9
<212> PRT
<213> Artificial Sequence

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<220>
<221> VARIANT
<222> 1
<223> Xaa = F, Y, D, E, P, Q

<221> VARIANT
<222> 2
<223> Xaa = L, M, I, V, A, T, Q

<221> VARIANT
<222> 3
<223> Xaa = F, W, Y, E, R, K

<221> VARIANT
<222> 4
<223> Xaa = W, M

<221> VARIANT
<222> 5
<223> Xaa = H, Y, E, N

<221> VARIANT
<222> 6
<223> Xaa = R, H, K

<221> VARIANT
<222> (7)...(7)
<223> Xaa = F, W, Y, D, E, R, K, G

<221> VARIANT
<222> (8)...(8)
<223> Xaa = F, M, V

<221> VARIANT
<222> (9)...(9)
<223> Xaa = V, L, I, A, T

<400> 71
Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
  1                      5

<210> 72
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<221> VARIANT
<222> 1
<223> Xaa = F, Y, D, E, P, Q

<221> VARIANT
<222> 2
<223> Xaa = L, M, I, V, A, T, Q

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<221> VARIANT
 <222> 3
 <223> Xaa = L, I, M, F, Y, R, K, E

 <221> VARIANT
 <222> 4
 <223> Xaa = W, Q

 <221> VARIANT
 <222> 5
 <223> Xaa = F, W, R, K, E

 <221> VARIANT
 <222> 6
 <223> Xaa = any amino acid

 <221> VARIANT
 <222> (7)...(7)
 <223> Xaa = L, R

 <221> VARIANT
 <222> (8)...(8)
 <223> Xaa = M, F, W, D, N, Q, R, K

 <221> VARIANT
 <222> (9)...(9)
 <223> Xaa = F

 <221> VARIANT
 <222> (10)...(10)
 <223> Xaa = L, I, V, A, T

 <400> 72
 Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
 1 5 10

 <210> 73
 <211> 11
 <212> PRT
 <213> Artificial Sequence

 <220>
 <221> VARIANT
 <222> 1
 <223> Xaa = L, I, V, M, R, H, K, G, D, E, Q, N, P

 <221> VARIANT
 <222> 2
 <223> Xaa = L, M, I, V, A, T, Q

 <221> VARIANT
 <222> 3
 <223> Xaa = L, I, V, M, Y, F, W, G, Q, N, S, T, C

 <221> VARIANT
 <222> 4

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<223> Xaa = D, E, S, T, C

<221> VARIANT
<222> 5
<223> Xaa = G, R, H, K

<221> VARIANT
<222> 6
<223> Xaa = L, I, V, M, G, D, E, R, H, K, Y, F, W, P

<221> VARIANT
<222> (7)...(7)
<223> Xaa = G, D, E, Q, N

<221> VARIANT
<222> (8)...(8)
<223> Xaa = Y, F, W, G, D, E, A

<221> VARIANT
<222> (9)...(9)
<223> Xaa = Y, F, W, L, I, V, M, D, E, R, H, K, P

<221> VARIANT
<222> (10)...(10)
<223> Xaa = P, G, Y, F, W, R, H, K, Q, N

<221> VARIANT
<222> (11)...(11)
<223> Xaa = L, I, V, A, T

<400> 73
Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
 1               5               10

<210> 74
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<221> VARIANT
<222> 1
<223> Xaa = D, E, S, T, C

<221> VARIANT
<222> 2
<223> Xaa = Q, V, T, I, A, M, L

<221> VARIANT
<222> 3
<223> Xaa = A, D, E

<221> VARIANT
<222> 4
<223> Xaa = Q, N

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<221> VARIANT
<222> 5
<223> Xaa = G

<221> VARIANT
<222> 6
<223> Xaa = A, P

<221> VARIANT
<222> (7)...(7)
<223> Xaa = D, E

<221> VARIANT
<222> (8)...(8)
<223> Xaa = any amino acid

<221> VARIANT
<222> (9)...(9)
<223> Xaa = I, V, L, A, M, T

<400> 74
Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
 1                      5

<210> 75
<211> 10
<212> PRT
<213> Artificial Sequence

.
<220>
<221> VARIANT
<222> 1
<223> Xaa = Q, N, Y, F, W, D, E, G, S, T, C

<221> VARIANT
<222> 2
<223> Xaa = Q, V, T, I, A, M, L

<221> VARIANT
<222> 3
<223> Xaa = Y, F, W, D, E, G

<221> VARIANT
<222> 4
<223> Xaa = S, T, C, P

<221> VARIANT
<222> 5
<223> Xaa = D, E

<221> VARIANT
<222> 6
<223> Xaa = A, D, E, R, H, K

<221> VARIANT
<222> (7)...(7)

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<223> Xaa = L, I, V, M, P, G, Q, N

 <221> VARIANT
 <222> (8)...(8)
 <223> Xaa = R, H, K, D, E

 <221> VARIANT
 <222> (9)...(9)
 <223> Xaa = P, R, H, K

 <221> VARIANT
 <222> (10)...(10)
 <223> Xaa = I, V, L, A, M, T

 <400> 75
 Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
 1 5 10

 <210> 76
 <211> 9
 <212> PRT
 <213> Artificial Sequence

 <220>
 <221> VARIANT
 <222> 1
 <223> Xaa = Y, F, W, P

 <221> VARIANT
 <222> 2
 <223> Xaa = L, M, Q, V, A, I, T

 <221> VARIANT
 <222> 3
 <223> Xaa = A, R, H, K, D, E

 <221> VARIANT
 <222> 4
 <223> Xaa = any amino acid

 <221> VARIANT
 <222> 5
 <223> Xaa = D, E

 <221> VARIANT
 <222> 6
 <223> Xaa = Y, F, W

 <221> VARIANT
 <222> (7)...(7)
 <223> Xaa = G, A, Y, F, W

 <221> VARIANT
 <222> (8)...(8)
 <223> Xaa = P, R, H, K

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<221> VARIANT
<222> (9)...(9)
<223> Xaa = V, I, T, A, M, L

<400> 76
Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
 1                      5

<210> 77
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<221> VARIANT
<222> 1
<223> Xaa = Y, F, W, Q, N, D, E, L, I, V, M, P

<221> VARIANT
<222> 2
<223> Xaa = L, M, Q, V, A, T, I

<221> VARIANT
<222> 3
<223> Xaa = Y, F, W, R, H, K, S, T, C, D, E, G

<221> VARIANT
<222> 4
<223> Xaa = D, E, P

<221> VARIANT
<222> 5
<223> Xaa = A

<221> VARIANT
<222> 6
<223> Xaa = P

<221> VARIANT
<222> (7)...(7)
<223> Xaa = L, I, V, M, P, G, Q, N

<221> VARIANT
<222> (8)...(8)
<223> Xaa = G, D, E, R, H, K, Y, F, W

<221> VARIANT
<222> (9)...(9)
<223> Xaa = A, R, H, K

<221> VARIANT
<222> (10)...(10)
<223> Xaa = V, I, T, A, M, L

<400> 77
Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa

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<210> 78
 <211> 9
 <212> PRT
 <213> Artificial Sequence

<220>
 <221> VARIANT
 <222> 1
 <223> Xaa = P

<221> VARIANT
 <222> 2
 <223> Xaa = Q, V, A, I, T, M, L

<221> VARIANT
 <222> 3
 <223> Xaa = L, I, V, M, G, R, H, K

<221> VARIANT
 <222> 4
 <223> Xaa = Q, N, P

<221> VARIANT
 <222> 5
 <223> Xaa = G, P

<221> VARIANT
 <222> 6
 <223> Xaa = A, P

<221> VARIANT
 <222> (7)...(7)
 <223> Xaa = D, E

<221> VARIANT
 <222> (8)...(8)
 <223> Xaa = Y, F, W

<221> VARIANT
 <222> (9)...(9)
 <223> Xaa = V, I, L, A, T, M

<400> 78
 Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
 1 5

<210> 79
 <211> 10
 <212> PRT
 <213> Artificial Sequence

<220>
 <221> VARIANT

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<222> 1
<223> Xaa = Q, N, D, E, P

<221> VARIANT
<222> 2
<223> Xaa = Q, V, A, I, T, M, L

<221> VARIANT
<222> 3
<223> Xaa = Y, F, W, L, I, V, M, G, D, E, R, H, K, Q, N,
      S, T, C

<221> VARIANT
<222> 4
<223> Xaa = any amino acid

<221> VARIANT
<222> 5
<223> Xaa = D, E

<221> VARIANT
<222> 6
<223> Xaa = D, E

<221> VARIANT
<222> (7)...(7)
<223> Xaa = L, I, V, M, P, A, Q, N

<221> VARIANT
<222> (8)...(8)
<223> Xaa = R, H, K, Q, N

<221> VARIANT
<222> (9)...(9)
<223> Xaa = A, D, E, P, R, H, K

<221> VARIANT
<222> (10)...(10)
<223> Xaa = V, I, L, A, T, M

<400> 79
Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
 1             5             10

<210> 80
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<221> VARIANT
<222> 1
<223> Xaa = Y, F, W, D, E, G, R, H, K

<221> VARIANT
<222> 2

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<223> Xaa = V, T, A, I, M

 <221> VARIANT
 <222> 3
 <223> Xaa = A, G, R, H, K, D, E

 <221> VARIANT
 <222> 4
 <223> Xaa = any amino acid

 <221> VARIANT
 <222> 5
 <223> Xaa = P, D, E

 <221> VARIANT
 <222> 6
 <223> Xaa = R, H, K, A

 <221> VARIANT
 <222> (7)...(7)
 <223> Xaa = A, R, H, K

 <221> VARIANT
 <222> (8)...(8)
 <223> Xaa = any amino acid

 <221> VARIANT
 <222> (9)...(9)
 <223> Xaa = V, I, L, A, M, T

 <400> 80
 Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
 1 5

 <210> 81
 <211> 10
 <212> PRT
 <213> Artificial Sequence

 <220>
 <221> VARIANT
 <222> 1
 <223> Xaa = P, Q, N, D, E, G

 <221> VARIANT
 <222> 2
 <223> Xaa = V, T, A, I, M

 <221> VARIANT
 <222> 3
 <223> Xaa = A, R, H, K, P, Q, N, G, D, E

 <221> VARIANT
 <222> 4
 <223> Xaa = A, D, E, R, H, K, P

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<221> VARIANT
<222> 5
<223> Xaa = D, E, Q, N, P, S, T, C

<221> VARIANT
<222> 6
<223> Xaa = Q, N, R, H, K

<221> VARIANT
<222> (7)...(7)
<223> Xaa = Q, N, Y, F, W, R, H, K, D, E, P, S, T, C

<221> VARIANT
<222> (8)...(8)
<223> Xaa = R, H, K, D, E, Q, N

<221> VARIANT
<222> (9)...(9)
<223> Xaa = any amino acid

<221> VARIANT
<222> (10)...(10)
<223> Xaa = V, I, L, A, M, T

<400> 81
Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
 1                5                10

<210> 82
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<221> VARIANT
<222> 1
<223> Xaa = Y, F, P

<221> VARIANT
<222> 2
<223> Xaa = L, M, V, T, Q, A, I

<221> VARIANT
<222> 3
<223> Xaa = A, R, K, D, E

<221> VARIANT
<222> 4
<223> Xaa = any amino acid

<221> VARIANT
<222> 5
<223> Xaa = E

<221> VARIANT
<222> 6

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<223> Xaa = A

 <221> VARIANT
 <222> (7)...(7)
 <223> Xaa = D, E

 <221> VARIANT
 <222> (8)...(8)
 <223> Xaa = any amino acid

 <221> VARIANT
 <222> (9)...(9)
 <223> Xaa = I, V, L, M, T, A

 <400> 82
 Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
 1 5

 <210> 83
 <211> 10
 <212> PRT
 <213> Artificial Sequence

 <220>
 <221> VARIANT
 <222> 1
 <223> Xaa = F, Y, D, E, P

 <221> VARIANT
 <222> 2
 <223> Xaa = L, M, V, T, Q, A, I

 <221> VARIANT
 <222> 3
 <223> Xaa = F, Y, W, R, K, D, E, G

 <221> VARIANT
 <222> 4
 <223> Xaa = P

 <221> VARIANT
 <222> 5
 <223> Xaa = D, E

 <221> VARIANT
 <222> 6
 <223> Xaa = any amino acid

 <221> VARIANT
 <222> (7)...(7)
 <223> Xaa = L, I, V, M, Q, N, P

 <221> VARIANT
 <222> (8)...(8)
 <223> Xaa = H, R, K, D, Q, N


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<221> VARIANT
<222> (9)...(9)
<223> Xaa = R, H, K

<221> VARIANT
<222> (10)...(10)
<223> Xaa = V, I, L, M, T, A

<400> 83
Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
 1                5                10

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